

Randomized Clinical Trial of Different Bandage Regimens after Foam Sclerotherapy for Varicose VeinsO'Hare JL, Stephens J, Parkin D, et al. *Br J Surg* 2010;97:650-6.

Conclusion: There are no differences between sclerotherapy results in patients treated for truncal varices with foam sclerotherapy regardless of whether compression therapy after the procedure is used for 1 or 5 days.

Summary: There are no data on the optimal bandaging regimen after foam sclerotherapy for truncal varices. In Great Britain, 80% of the members of the Vascular Society of Great Britain and Ireland responding to a questionnaire, and who treated patients with sclerotherapy, indicated they used compression bandages, and 90% subsequently used compression stockings after compression bandaging. Duration of treatment ranged from 1 to 7 days for initial bandages, with compression stockings used for 7 to 14 days, with some surgeons recommending compression stockings for up to 3 months. The authors sought to determine whether duration of bandaging could be reduced after foam sclerotherapy for truncal varices.

Patients with primary uncomplicated varicose veins were randomized after foam sclerotherapy treatment to wearing compression bandaging for 24 hours or 5 days. In each case after compression bandages were removed, thromboembolism deterrent (TED) stockings then used for a total of 14 days of compression after foam sclerotherapy. The primary end point of the study was the 6-week Aberdeen Varicose Vein Severity Score (AVVSS) and Buford pain score. The study randomized 124 legs, of which 61 were randomized to 24 hours of compression bandaging and 63 to 5 days of compression bandaging. Venous occlusion rates at 6 weeks were 90% and 89%, respectively ($P = .842$). There were no differences in phlebitis after 2 weeks ($P = .445$), skin discoloration after 6 weeks (46% vs 40%; $P = .546$). There were no differences between groups in the AVVSS from baseline to 2 weeks (-0.29 vs -0.80 ; $P = .717$) or to 6 weeks (-5.89 vs -5.14 ; 95% confidence interval [CI] for the difference, -3.29 to 1.8 ; $P = .563$). There were also no differences between groups in changes in the Buford pain score from baseline to 2 weeks (-9.04 vs -2.80 , $P = .248$) or to 6 weeks (-17.32 vs -8.46 ; 95% CI for the difference, -19.06 to 1.33 ; $P = .088$). Finally, the two groups also did not demonstrate any differences in changes in the Short Form-36 score from baseline to 6 weeks (2.02 vs 1.74 ; $P = .903$).

Comment: Foam sclerotherapy is replacing liquid sclerotherapy as the preferred method of sclerotherapy for patients with truncal varicosities. Compression after treatment is essential to optimal results. However, as the authors point out with respect to foam sclerotherapy, the optimal duration of compression after treatment has not been adequately studied. This study is good news for patients. Compression bandages are not comfortable, and the results indicate that 24 hours of compressive bandaging, followed by a TED stocking for a total of 2 weeks, is just as efficacious as 5 days of compressive bandaging, followed by a TED stocking for a total of 2 weeks. The study provides practical guidance for post-therapy bandaging of patients undergoing foam sclerotherapy.

Randomized Controlled Trial of Dual Antiplatelet Therapy in Patients Undergoing Surgery for Critical Limb IschemiaBurdess A, Nimmo AF, Garden OJ, et al. *Ann Surg* 2010;252:37-42.

Conclusion: Dual antiplatelet therapy of aspirin and clopidogrel compared with aspirin alone in patients undergoing surgery for critical limb ischemia reduces biomarkers of thrombosis without an increase in unacceptable bleeding.

Summary: Myocardial injury is common after vascular surgery, with reported incidences of between 8% and 40%. In patients with vascular disease, use of clopidogrel has a moderate additional secondary preventative effect to that of aspirin for prevention of cardiovascular end points (Bhatt DL, *N Engl J Med* 2006;354:1706-717 and Yusuf S, et al, *N Engl J Med* 2001;345:494-502). The authors reasoned that given the benefits of dual antiplatelet therapy, it would be reasonable to postulate dual antiplatelet therapy would be beneficial in patients undergoing vascular surgery. The hypothesis was that perioperative dual antiplatelet therapy would improve biomarkers of atherothrombosis in patients undergoing surgery for critical limb ischemia without causing unacceptable bleeding. This was a double-blind, randomized, controlled trial comprising 108 patients undergoing amputation or infrainguinal revascularization for critical limb ischemia. All patients were maintained on aspirin (75 mg daily) and then randomized to clopidogrel (600 mg before surgery and 75 mg daily for 3 days) or placebo. There were 50 patients in the clopidogrel group and 58 in the placebo group. Myocardial injury was assessed by plasma troponin concentrations and platelet activation assessed by flow cytometry.

Platelet-monocyte aggregation before surgery was reduced by clopidogrel (38%-30%; $P = .007$). This reduction was retained postoperatively ($P = .0019$). Postoperatively, there were 18 troponin events, 8 (16%) in the clopidogrel group vs 10 (17.2%) in the placebo group (relatively risk [RR] 0.93, 95% confidence interval [CI], 0.39-2.17, $P = .86$). Half of the troponin-positive events occurred preoperatively. Clopidogrel was associated with a greater decline in troponin concentrations ($P = .001$). Blood transfusions were increased in the clopidogrel group (28% vs 12.6%; RR, 2.3; 95% CI, 1.0-5.29; $P = .037$). There was, however, no increase in major

life-threatening bleeding (RR, 1.4; 95% CI, 0.49-3.76; $P = .56$) or minor bleeding (RR, 1.64; 95% CI, 0.87-3.1; $P = .12$).

Comment: This is the first double blind, randomized trial of perioperative dual antiplatelet therapy in patients undergoing surgery for critical limb ischemia. The study was underpowered to detect a difference in clinical events; however, the authors were able to demonstrate improvements in biomarkers of platelet activation without an increase in bleeding complications. Many troponin-positive events occurred before surgery. This suggests "silent" preoperative myocardial injury is common in patients with critical limb ischemia. The study indicates potential benefits of dual antiplatelet therapy in the perioperative period in patients with critical limb ischemia. Whether improvements in surrogate biomarkers translate to clinical benefit remains to be established.

Risk of Recurrent Venous Thrombosis in Homozygous Carriers and Double Heterozygous Carriers of Factor V Leiden and Prothrombin G20210ALijfering WM, Middeldorp S, Veeger NJ, et al. *Circulation* 2010;121:1706-12.

Conclusion: Patients with venous thromboses who are homozygous for factor V Leiden and/or prothrombin G20210A or are double heterozygous carriers of factor V Leiden and prothrombin G20210, do not have a high risk of recurrent venous thrombosis.

Summary: Within the Caucasian population, factor V Leiden has a prevalence of approximately 5% and the prothrombin G20210A mutation has a prevalence of approximately 2%. The risk for initial venous thrombosis is clearly higher in heterozygote and homozygote carriers of factor V Leiden and prothrombin G20210A. Heterozygote carriers of factor V Leiden have an approximately a 5-fold increased risk for initial venous thrombosis, whereas homozygote carriers have an 18-fold increased risk for initial venous thrombosis. Individuals heterozygous for both factor V Leiden and prothrombin G20210A have approximately a 20-fold risk for initial venous thrombosis. It is generally assumed that patients with thrombophilia on the bases of factor V Leiden and/or prothrombin G20210A mutations would also have increased risk for recurrent venous thrombosis. This assumes the risk of recurrence is driven primarily by the same factors that prompted the initial venous thrombosis. However, some studies have suggested thrombophilia secondary to factor V Leiden and prothrombin G20210A mutations actually do not increase the risk of recurrent venous thrombosis. This would argue against testing for these genetic defects in individuals with an unprovoked first-time venous thrombosis (Christiansen SC et al, *JAMA* 2005;293:2352-61; and Baglin T et al, *Lancet* 2003;362:523-6).

The authors performed a case-control study using a large cohort of families with thrombophilia identified through three major university hospitals in the Netherlands. The goal was to calculate the risk of recurrent venous thrombosis in individuals with homozygosity or double heterozygosity of factor V Leiden and/or prothrombin G20210A. Controls were patients with only one episode of venous thrombosis, and cases were individuals with recurrent venous thrombosis. There were 788 individuals in the cohort with venous thrombosis: 357 had factor V Leiden, and 137 had prothrombin G20210A mutation, 27 had factor V Leiden and/or prothrombin G20210A homozygosity, and 49 were double heterozygotes for both mutations. The cohort comprised 463 "controls" with only one venous thrombosis and 325 "cases" with recurrent venous thrombosis. Compared with noncarriers, the crude odds ratio for recurrence was 1.2 (95% confidence interval [CI], 0.9-1.6) for heterozygote carriers of factor V Leiden, 0.7 (95% CI, 0.4-1.2) for prothrombin G20210A, 1.2 (95% CI, 0.5-2.6) for homozygous carriers of factor V Leiden and/or prothrombin G20210A, and 1.0 (95% CI, 0.6-1.9) for double heterozygous of both mutations. Risk estimates were not altered by adjustments for family status, sex, age, other natural anticoagulant deficiencies, or first event type.

Comment: The study has major indications for the evaluation of patients with a first-time unprovoked venous thrombosis. It suggests evaluation for factor V Leiden and prothrombin G20210A mutations have little clinical implication or benefit for the individual with a first-time venous thrombosis. If recurrence of first-time venous thrombosis is not increased by the presence of these mutations, then there is no need to test for them in the patient with an initial unprovoked venous thrombosis. The information in this study does not apply to individuals with multiple recurrent venous thrombi. It is also important to consider, because these mutations are genetic, whether it is still reasonable to perform thrombophilia testing in the patients with first-time venous thrombosis so that family members can be appropriately counseled.

Superficial Venous Thrombosis and Venous Thromboembolism A Large, Prospective Epidemiologic StudyDecousus H, Quere I, Presles E; Prospective Observational Superficial Thrombophlebitis Study Group. *Ann Intern Med* 2010;152:218-24.

Conclusion: A substantial number of patients with superficial venous thrombosis (SVT) have venous thromboembolism (VTE) at presentation.